

## REMARKS

The non-final Office Action mailed December 8, 2003 has been reviewed and carefully considered. Claims 1-81 are pending in the application. Claims 1-16 and 34-81 have been withdrawn from consideration. Claims 17-20, 22, 27 and 33 were rejected. Applicants appreciate Examiner's indication of allowability of claims 21, 23-26 and 28-32.

Applicants request that withdrawn claims 1-16 and 34-81 be canceled.

In the fourth full paragraph on page 2 of the Office Action, claims 17-19, 27 and 33 were rejected under 35 U.S.C. § 102(b) over the Mukherjee et al. article "Vector set partitioning with classified successive refinement VQ for embedded wavelet image coding."

In the second full paragraph on page 4 of the Office Action, claims 20 and 22 were rejected under 35 U.S.C. § 103(a) over Murkherjee in view of Reuman (U.S. Patent No.5,629,778).

Applicants respectfully traverse the §§ 102(b) and 103(a) rejections. To establish a *prima facie* case for rejection under 35 U.S.C. § 102, all the claim limitations must be taught, disclosed or suggested by the cited reference. To establish a *prima facie* case for rejection under 35 U.S.C. § 103(a), all the claim limitations must be taught, disclosed or suggested by the cited references and evidence of motivation to combine or modify the cited references must be presented. *See MPEP §§ 2143.01 and 2143.03*. In this instance, neither of the requirements is present and a *prima facie* rejection fails under both 35 U.S.C. § 102 and 35 U.S.C. § 103(a) because the Office Action does not cite a reference or references that teach, disclose or suggest all the claim limitations of Applicants' application.

The instant application teaches a data compression system that requires at least a transformer for applying linear analysis transform, "the transformer reducing errors of the transform by testing at least one number resulting from an incremental calculation of transform coefficients during a transform," and "determining whether to perform a corrective action based on the testing and performing the corrective action when a corrective action is determined to be needed." The system provides faster transforms that use early aborts and precision refinements.

More specifically, the instant application requires at least “the transformer reducing errors of the transform by testing at least one number resulting from an incremental calculation of transform coefficients during a transform.”

Mukherjee, unlike the instant application, focuses on vector set partitioning in hierarchical trees (SPIHT) where “vector set partitioning operates in multiple passes, where each pass is associated with a vector magnitude threshold,” page 26, first full paragraph. Mukherjee continues “[n]ote that the use of the  $L_2$  -norm(magnitude) in determining significance of a vector in a pass is justified for orthogonal wavelets, because it follows from Parseval’s relationship that the squared magnitude error in quantization of the vectors contribute additively to the reconstruction mean-squared-error,” page 26, last paragraph in first column. Mukherjee does not discuss error in any other part of the article. The above quote from Mukherjee discussing squared magnitude error is an illustration of why the  $L_2$  -norm(magnitude) works in determining significance of a vector in a pass. Therefore, Mukherjee does not teach, disclose or suggest “reducing errors of the transform by testing at least one number resulting from an incremental calculation of transform coefficients during a transform,” from the instant application.

Furthermore, the instant application requires that the transformer have capabilities for “determining whether to perform a corrective action based on the testing and performing the corrective action when a corrective action is determined to be needed.” Corrective action in the instant application includes, for example, an abort procedure where “[t]he abort procedure is used to determine when a calculation can be terminated before its completion to save cycles, when the result of the calculation is projected to be too small, so that it will be quantized to zero,” see application page 19, line 19-22.

Mukherjee, on the other hand, teaches that “[t]he progressive refinement of vectors already decided as significant in previous passes is achieved by classified successive refinement VQ schemes such as multistage or tree-structured VQ, where the class is determined by the pass in which a vector becomes significant,” page 26, last 5 lines of first full paragraph. Mukherjee continues at page 26, last 7 lines of the first full paragraph, second column, “[a] drawback however, is that for images in which the spatial correlation between the components of a vector is less, there is less to be gained by VQ as opposed to scalar quantization. In fact, with VQ, too many bits may be unnecessarily spent in quantizing vectors which have only one or two

significant coefficients.” As can be seen, Mukherjee does not teach, disclose or suggest performing “a corrective action based on the testing and performing the corrective action when a corrective action is determined to be needed” because a Mukherjee acknowledges that a drawback to its teaching is that too many bits may be unnecessarily spent in quantizing insignificant vectors.

Reuman fails to remedy the deficiencies of Mukherjee. Reuman focuses on a method and apparatus for reduction of image data compression noise. Reuman does not mention test anywhere. Because Reuman does not perform tests on numbers resulting from an incremental calculation of transform coefficients, Reuman cannot take corrective action based on the testing. Therefore, Reuman too, does not teach, disclose or suggest “the transformer reducing errors of the transform by testing at least one number resulting from an incremental calculation of transform coefficients during a transform,” or “determining whether to perform a corrective action based on the testing and performing the corrective action when a corrective action is determined to be needed” from the instant application.

Mukherjee does not teach, disclose or suggest all of the limitations of Applicants’ application, thus the Section 102 rejection is improper and should be withdrawn. Because the combination of Mukherjee and Reuman fails to teach, disclose or suggest all of the elements of at least claim 17, the Section 103 rejection is improper. Accordingly, Applicants request that the Section 103 rejection be withdrawn.

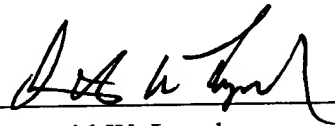
Dependent claims 18-33 are also patentable over the references because they incorporate all of the limitations of the corresponding independent claims. Further, dependent claims 18-33 recite additional novel elements and limitations. Applicants reserve the right to argue independently the patentability of these additional novel aspects. Therefore, Applicants respectfully submit that dependent claims 18-33 are patentable over the cited references.

On the basis of the above amendments and remarks, it is respectfully submitted that the claims are in immediate condition for allowance. Accordingly, reconsideration of this application and its allowance are requested.

If a telephone conference would be helpful in resolving any issues concerning this communication, please contact Attorney for Applicants, David W. Lynch, at 651-686-6633 Ext. 116.

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